

22nd Annual International Workshop on Human Subjects for Biomechanical Research

**US Department of Transportation
National Highway Traffic Safety Administration**

Richard M. Morgan, Co-Chair

Janusz Kajzer, Co-Chair

Fort Lauderdale, Florida

30 October 1994

TABLE OF CONTENTS

	Page
INTRODUCTORY REMARKS: Richard M. Morgan.....	iii
Chest Injury Mechanism in Frontal Impact.....	1
Narayan Yoganandan, Frank A. Pintar, Richard M. Morgan, Rolf H. Eppinger, Anthony Sances, Jr	
Discussion.....	7
Instrumentation Package For Lower Extremities.....	11
Jeff R. Crandall, Richard M. Morgan, Rolf H. Eppinger	
Discussion.....	21
The development of Protocol For Documenting Vehicular Sitting Posture of Car Occupants Involved in Rear End Collision	23
Jocelyn B. Pedder, Tom Gibson, Dainius Dalmotas	
Discussion.....	25
Central Nervous Systems Injury Criteria From Human Surrogate Research: A Prospective View.....	29
David F. Meaney, Susan S. Margulies, Phil Whitley, Lawrence E. Thibault	
Discussion.....	43
Warming of Cadavic Specimens.....	49
Kelly B. Kennett, Jeff R. Crandall, Walter D. Pilkey	
Discussion.....	57
Preparation, Cardiopulmonary Pressurization and Rigor Mortis In Cadaver Testing.....	61
Dimitrios Kallieris and Rainer Mattern	
Discussion.....	71
Measurement of Large Strains In Skeletal Muscle.....	73
Barry S. Myers, Tom M. Best, C. Todd Wooley, Daniel L. Camacho	
Discussion.....	81
Evaluation of Chest Band Responses in a Dynamic Test Environment.....	83
Alena V. Hagedorn, Ronald W. Burton	
Discussion.....	99

TABLE OF CONTENTS

	Page
Side Impact Subsystem Test Device - Sled To Sled Test Set Up	103
Yue Huang, John M. Cavanaugh, Warren Hardy, Matt Mason, Jr, Albert I. King	
Discussion.....	119
Evaluation of Preservation Methods for Cadavers	123
Jeff R. Crandall, Walter D. Pilkey, Benjamin C. Sturgill	
Discussion.....	133
Dynamic Impacting of Unembalmed versus Embalmed Human Cadaver Leg	135
David J. Porta, Tyler A. Kress, Peter M. Fuller, John N. Snider	
Discussion.....	145
A New Laceration Prediction System	149
R. McKinney, D. Myers, D. Moody, B. McKinney, P. Martin, J. Crandall	
Discussion.....	153

INTRODUCTION

The Twenty-Second Annual International Workshop on Human Subjects for Biomechanical Research met in Fort Lauderdale, Florida on 30 October 1994. The Workshop began at 9:00 in the morning and continued until 4:30 pm. There were 12 oral presentations. One hundred and thirty-two people attended the Workshop.

I acknowledge the Stapp Conference Advisory Committee for its support, and Mr. Mone Asensio and Ms. Cynthia Geisler of the SAE for coordinating the meeting room assignment and providing audiovisual support. I add that the Workshop papers are neither sanctioned nor approved by the Stapp Car Crash Conference Advisory Committee. Presenters at the Workshop should not allude to the Stapp Car Crash Conference during the introduction of their presentation.

Ms. Thuvan T. Nguyen, Ms. Lori Keenan, and Mr. Matthew Maltese from Conrad Technologies, Inc. helped with preparing for the Workshop and publishing these Proceedings.


Please consider papers appearing in these Proceedings as workshop or non-formal publications, i.e., do not reference the Workshop Proceedings in the open literature. These papers have not been screened for accuracy nor have they been refereed by any body of scientific peers.

At the Fort Lauderdale Workshop, you--the attendees--took part in many animated and concerned discussions following the presentations. You, the participants, are helping maintain a suitable atmosphere about the Workshop for the free exchange of ideas.

We will hold our coming Workshop meeting, the Twenty-Third, in Coronado, California on Tuesday 7 November 1995. Please plan on attending.

With your help, we altered the focus of the Workshop for the Fort Lauderdale meeting. We were able to solicit presentations that explained recent innovations or difficulties in human cadaver transducer installation and human cadaver impact test methodology. The papers about mathematical simulations or dummy tests were oriented toward preparing for biomechanical tests with human cadavers or examining the ramifications of previous human subject experiments. At the Coronado Workshop, we hope to continue this emphasis on biomechanical investigation using human cadavers.

Dr. Janusz Kajzer, of the Department of Injury Prevention at the Chalmers University of Technology in Sweden, was co-chair of the Twenty-Second Workshop. He presided over the afternoon session for the Fort Lauderdale Workshop. Dr. Kajzer suggests that we need to improve our communication with our overseas colleagues. In preparing for the Coronado Workshop, Dr. Kajzer and I will concentrate on expanding and improving communications with those in the biomechanical community outside of the USA.


Richard M. Morgan
1994 Co-Chair

